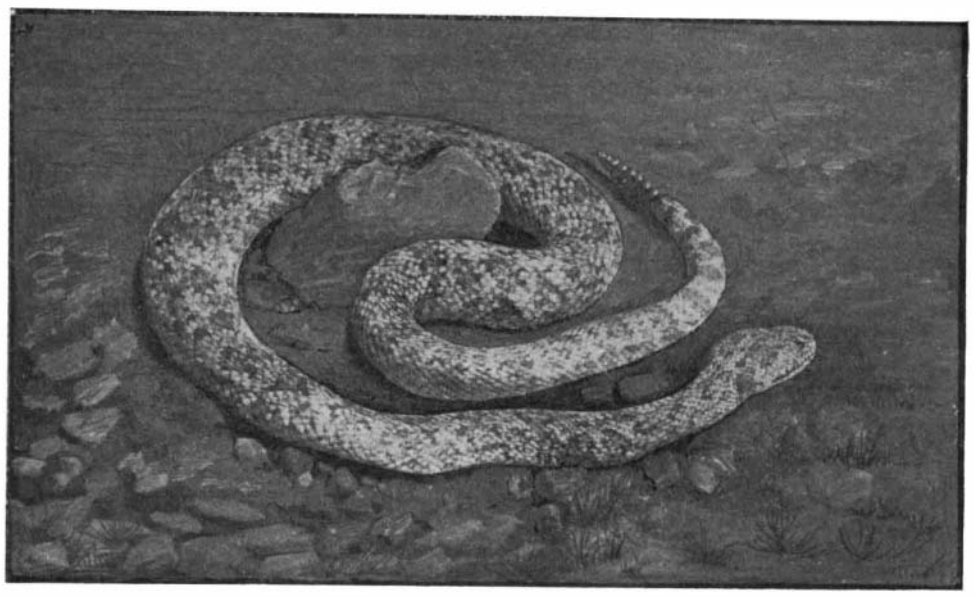
VENOMOUS SERPENTS.—III.

BY RANDOLPH I. GEARE.

The Banded Rattlesnake was very naturally named *Crotalus horridus* by the great naturalist Linnæus. It occurs in rocky places on dry soil, and in North America its range extends as far north as the middle of New England and New York State, west as far as the Rocky Mountains, and south to the Gulf States. In recent years they have been comparatively scarce in many localities, owing to the advance of cultivation. About sixty years ago they were abundant in New York State, as evidenced by De Kay, who in 1842 wrote: "Two men in three days killed 1,104 rattlesnakes on the east side of Tongue Mountain, in the town of Bolton. Some of them were very large, carrying from fifteen to twenty rattles. They were killed for their oil, or grease, which is said to be very valuable." It seems somewhat strange that they are not recorded as occurring in the Adirondacks, but doubtless the summer visitors to the delightful resorts in that region are not overwhelmed with grief on that account.

In Illinois they seem to be multiplying greatly, for whereas in bygone days the pigs roamed around at will—in the absence of any stock laws—and exterminated the snakes to a large extent, now the hogs are penned up, giving the snakes their innings. West of the Mississippi, Banded Rattlesnakes are still found in eastern Iowa, Kansas, Missouri, Arkansas, and the Indian Territory.

The food of the Banded Rattlesnake consists of the smaller kinds of warm-blooded animals, such as rabbits, squirrels, rats, mice, and sometimes birds. Holbrook describes this reptile as remarkably slow and sluggish, lying quietly in wait for his prey, and never wantonly attacking or destroying animals, except as food, unless disturbed by them. But when irritated or interfered with, his whole attitude changes with the rapidity of lightning. He immediately coils himself, shakes his rattles violently, and strikes at whatever comes within reach. "In his native woods," continues Holbrook, "one may pass unmolested within a few feet of him. Though aware of the presence of some one, the snake either lies quiet, or glides away to a more retired spot." It is said that this species never follows the object of his rage, be it an animal that has chanced to pass close to him, or only a stick thrust at him to provoke his wrath. He simply strikes, and prepares to strike again, or he may slowly retreat like an unconquered enemy, sure of his strength, but not choosing further combat. So apathetic indeed do these snakes become, that persons have been known to step over them without arousing their anger or causing them to coil and strike. Indeed, Dr. Stejneger, in speaking on this point in his "Poisonous Snakes of North America," says: "There even seems to be truth in some of the stories about children having been found playing with them and carrying about live rattlesnakes without having been hurt."



WHITE RATTLESNAKE (CROTALUS MITCHELLII).

On this topic Dr. A. K. Fisher, of the Department of Agriculture, who has explored extensively in the West, assures me that he regards the rattlesnake as a quiet, rest-loving reptile, only attacking when attacked, and much preferring peace to battle.

The Vipers, which form a separate and rather numerous family of poisonous serpents, and which are not found in North America, will now be referred to. They are distinguished by the absence of the "pit" between the nostrils and the eyes, and they also have no teeth in the upper jaw except the two poison fangs.

One of the most dreaded snakes of this family is the Tic-Polonga or Katuka (*Daboia elegans*). It is a native of Asia, and is common in India and Ceylon. The word "Tic" means "spotted," while "Polonga" is a kind of generic name given by the natives to many serpents, no less than eight species being included. Its general color is brown, and there are two dark spots on each side of the back of the head, with a yellow streak between them. On the body are three rows of oblong brown spots, edged with white. This snake has a mortal hatred of the Cobra, which it attacks apparently without cause. There are many native legends in Ceylon regarding the ferocity of this snake.

Closely allied to the Tic-Polonga is the terrible Puff Adder, a native of South Africa, and one of the most deadly of poisonous snakes. Its color is brown, checkered with dark brown and white, and with a reddish band between the eyes. It is of an indolent disposition. It loves to grovel in the sand, just leaving its wicked-looking head above the surface. The fact that it lies almost concealed of course adds to its danger, and for this reason the small number of deaths recorded as the result of its bite is remarkable.

Other deadly serpents of the same region are the Das Adder, or River Jack (*Clotho nasicornis*), the males of which have a long curved horn on the nose; the Berg Adder (*Clotho atropos*), an ugly, thick-bodied, slow-crawling beast, with a suddenly tapering tail, and usually not more than eighteen inches long, and the Horned Adder (*Clotho cornuta*). This latter is sometimes, but erroneously, called the Cerastes, which is the true Horned Viper, a native of northern Africa, and by some believed to be the species responsible for the death of Cleopatra. Its color is pale brownish white, covered irregularly with brown spots, and its length is about two feet.

Another group of venomous Indian snakes may be alluded to by a reference to the Horatta Pam (*Echis carinata*), a rather small snake about fifteen or sixteen inches long. It is very poisonous, and to counteract its bite, a "double dose" of medicine is said to be necessary. It is grayish brown, with angular white streaks on the body, and large oblong spots on the head.

BANDED RATTLESNAKE (CROTALUS HORRIDUS).

Closely allied to the preceding species is the Asp, or Chersæa (*Vipera aspis*). It is rather common in many parts of southern Europe. Its bite is very severe, especially during the hot months. The Asp is olive in color on the upper parts, and has four rows of black spots.

Belonging to the same genus as the Asp is the Ammodyte, or Sand Natter (*Vipera ammodytes*), which inhabits southern Europe, and generally occurs in rocky places. Its bite is considered very dangerous. Like the Asp, it is olive above, with a broad dark streak on each temple, two similar streaks on each side of the head, and a wavy dark line along the crown of the spine.

A very deadly Australian snake of the Elapid group, and hideous of aspect, is the Death Adder, or Thorny Snake (*Acanthophis*). The "Yas" natives call it "Tammin" on account of the presence of a curved horny spine at the end of the tail, with which it is popularly believed to inflict a mortal sting. It is dull-colored, with dark bands shading off into the colors which characterize the back. It is thick in proportion to its length, which latter does not seem to average much over two feet. Its eye is a vivid yellow with a black pupil extending lengthwise.

Another venomous snake found in Australia, also of the Elapid group, is a species of Black Snake (*Pseudechis porphyriacus*). This is a very dangerous serpent, and is closely related to the Indian Cobra.

A third group of venomous serpents may be made up of those which live in the water, and a good example of these is the Black-backed Pelamis (*Pelamis bicolor*), or Nalla Whallagee Pam of the Indian fishermen. It aproaches land only to deposit its eggs. Curiously enough, it is forced to turn on its back before diving and can then be easily caught, although the fishermen are very glad to let it alone, for it has formidable teeth. The fangs are only a little larger than the rest of the teeth, but may be distinguished by the groove that runs along the front edge. Their average length is about three feet. Another of these marine snakes is the Chittul (*Hydrophis sublævis*) found in India and Ceylon. It is said to be extremely venomous. Its ground color is yellow, and the body is covered with an irregular row of black rings.

(To be continued.)

A New Use for Carborundum.

A new and interesting use has been discovered for carborundum, which has already found large employment as a substitute for emery. Capable of preparation only in a powerful electric furnace, where silica and carbon are fused together in presence of sawdust and common salt, carborundum is highly refractory; and it has been observed that a thin layer of the same substance applied to any other material of which furnaces are usually constructed, protects it from the heat and renders it almost equally refractory. Finely powdered carborundum is made up into a paste with water-glass, i. e., sodium silicate, or some similar binding substance; and the paste is applied by means of a brush or otherwise to the bricks which are intended to be used for building a furnace, or those bricks are actually immersed in the viscid liquid for a certain time. If the furnace has already been built, the paste can be painted on to the exposed surfaces, giving one or more coats as may be desired. It is stated that a layer 2 mm. thick will protect the bricks from the attack of the highest temperature which is ever produced by combustion methods in ordinary work. Examination of the bricks in such a furnace has shown that they had not suffered in the least. The skin of carborundum does not chip off, and is hard enough to resist mechanical injury.

About twenty years ago the United States government began the task of making a topographical map of the country. About a hundred years more will be required to complete the work. Begun in 1882, the work is being carried on in co-operation with the States. New York has appropriated the annual sum of $20,000 to $25,000 toward its share. There has never been a topographical map of the United States published other than rough sketches. For that reason the government work will be one of the largest ever made. What the cost of the map will be when finished it is difficult to state; the expense involved in mapping out New York alone will be about $1,000,000. The sheets relating to New York State will probably be completed within five years.